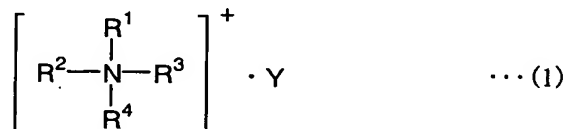


CLAIMS:

1. A process for photolyzing organic matter, characterized by photolytically degrading organic matter within a reaction system that includes a photocatalyst and a hydrophobic ionic liquid.

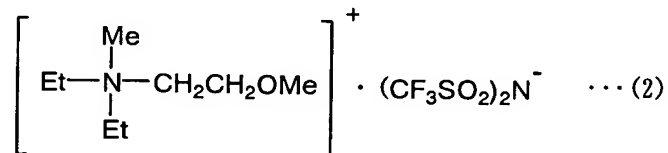
2. The process for photolyzing organic matter of claim 1 which is characterized in that the hydrophobic ionic liquid is a quaternary ammonium-type ionic liquid.

3. The process for photolyzing organic matter of claim 2 which is characterized in that the quaternary ammonium-type ionic liquid has general formula (1) below
[Chemical Formula 1]



wherein R^1 to R^4 are each independently an alkyl group of 1 to 5 carbons or an alkoxyalkyl group of the formula $R' - O - (CH_2)_n -$ (R' being methyl or ethyl, and the letter n being an integer from 1 to 4) and any two of R^1 , R^2 , R^3 and R^4 may together form a ring, with the proviso that at least one of R^1 to R^4 is the alkoxyalkyl group of the above formula; and Y is a monovalent anion.

4. The process for photolyzing organic matter of claim 3 which is characterized in that the quaternary ammonium-type ionic liquid has formula (2) below
[Chemical Formula 2]



wherein "Me" stands for methyl and "Et" stands for ethyl.

5. The process for photolyzing organic matter of any one of claims 1 to 4 which is characterized in that the photocatalyst is titanium dioxide.

5 6. A wastewater treatment process which is characterized by using the process for photolyzing organic matter of any one of claims 1 to 5.

7. The wastewater treatment process of claim 6 which is
10 characterized by comprising the steps of, in order:

extracting organic matter by mixing together a hydrophobic ionic liquid and organic matter-containing wastewater so as to move the organic matter from the wastewater into the hydrophobic ionic liquid;

15 separating the organic matter-containing hydrophobic ionic liquid and the wastewater; and

adding a photocatalyst to the organic matter-containing hydrophobic ionic liquid and carrying out light exposure so as to photolytically degrade the organic
20 matter.

8. The wastewater treatment process of claim 6 which is characterized by comprising the steps of, in order:

25 subjecting a mixture of a hydrophobic ionic liquid, a photocatalyst and organic matter-containing wastewater to light exposure under agitation so as to photolytically degrade the organic matter; and

separating the wastewater and the hydrophobic ionic liquid.